



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
**MfeI (82)**  
101 GAGAAAGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGTACTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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**HindIII (245)**  
**Psp1406I (203)** 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCCTACCTGAGGCC  
**PvuII (239)**  
**Bsu36I (291)**  
301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCTCCCGCCTGTGGTGCCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTCCTGACCCTGCTTCTCAACTCTACGCTTTTGTTCGTTT

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**AgeI (552)** 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTAGGAGGGCCAGCATGCTACGAGCTCTTTGGCTCTTGGATC  
**SphI (568)** 1► M L R A L W L F W I  
**SapI (587)**

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**BsrBI (683)**  
601 TTGGTGGCCATAACAGTCTCTTTCAGCAAACGCTGTTCTGCTCAGGAGTCTCTGTCATGTGATGCTTCTGGGTGTGTGATGGCCGCTCCAGGCTTTTCA  
11► L V A I T V L F S K R C S A Q E S L S C D A S G V C D G R S R S F

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**BstEII (777)**  
**NeoI (773)**  
701 CCTCTATTCCCTCCGACTCACAGCAGCCATGAAAAGCCTTGACCTGTCTTTCAACAAGATCACCTACATTGGCCATGGTACCTCCGAGCGTGTGGCAA  
44► T S I P S G L T A A M K S L D L S F N K I T Y I G H G D L R A C A N  
801 CCTCCAGTTCGATTTTGAAGTCCAGCAGAATCAATACAATAGAGGGAGACGCCCTTTATTCTCTGGGCAGTCTTGAACATTTGGATTTGTCTGATAAT  
77► L Q V L I L K S S R I N T I E G D A F Y S L G S L E H L D L S D N

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**Bsp120I (930)**  
**EcoO109I (930)**  
901 CACCTATCTAGTTTATCTTCTCTGTTTCGGGCCCTTCTCTTTGAAATACTTAACTTAATGGGAAATCCTTACCAGACACTGGGGTAAACATCGC  
111► H L S S L S S W F G P L S S L K Y L N L M G N P Y Q T L G V T S

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**Bsu36I (1028)**  
1001 TTTTTCCAATCTCACAATTTACAAAACCTCAGGATAGGAAATGTAGAGACTTTCAGTGAGATAAGGAGAATAGATTTTGTGGGCTGACTTCTCTCAA  
144► L F P N L T N L Q T L R I G N V E T F S E I R R I D F A G L T S L N  
1101 TGAAC TTGAAATTAAGGCATTAAGTCTCCGGAATTATCAGTCCCAAAGTCTAAAGTCGATCCGCGACATCCATCACCTGACTTTCACCTAAGCGAGTCT  
177► E L E I K A L S L R N Y Q S Q S L K S I R D I H H L T L H L S E S  
1201 GCTTTCCTGCTGGAGATTTTGCAGATATTCTGAGTTCGTGAGATATTTAGAATAAGAGATACTTAACTTGGCCAGGTTCCAGTTTCCACTGCCCG  
211► A F L L E I F A D I L S S V R Y L E L R D T N L A R F Q F S P L P

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**HindIII (1361)**  
1301 TAGATGAAGTCAGCTCACCGATGAAGAAGCTGGCATTCCGAGGCTCGGTTCTCACTGATGAAAGCTTTAACGAGCTCCTGAAGCTGTTGCGTTACATCTT  
244► V D E V S S P M K K L A F R G S V L T D E S F N E L L K L L R Y I L  
1401 GGAAGTGTCCGAGGTAGATTCGACGACTGTACCCTCAATGGGCTCGGCGATTTCAACCCCTCGGAGTCAGACGATGTGAGCGAGCTGGGTAAGTAGAA  
277► E L S E V E F D D C T L N G L G D F N P S E S D V V S E L G K V E

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**ScaI (1554)**  
1501 ACAGTCACTATCCGGAGTTGCATATCCCCAGTTCTATTTGTTTTATGACCTGAGTACTGTCTATTTCCCTCTGGAGAAGGTGAAGCGAATCACAGTAG  
311► T V T I R R L H I P Q F Y L F Y D L S T V Y S L L E K V K R I T V

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**BbsI (1611)** 1601 AGAACAGCAAGTCTTCTGTTCCCTGCTCGTTCTCCAGCATTTAAATCATTAGAATCTTAGACCTCAGCGAAAATCTGATGGTTGAAGAATATTT  
344► E N S K V F L V P C S F S Q H L K S L E F L D L S E N L M V E E Y L  
**EcoRI (1656)** 1701 GAAGAAGTCAAGGAGCCTGGCCTTCTACAAACCTAGTTTTGAGCCAGAATCATTGAGATCAATGCAAAAAACAGGAGAGATTTTGTCTG  
377► K N S A C K G A W P S L Q T L V L S Q N H L R S M Q K T G E I L L

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**PvuII (1859)**  
**PshAI (1857)**  
1801 ACTCTGAAAACTGACCTCCCTTGACATCAGCAGGAACACTTTTCATCCGATGCCGACAGCTGTCAAGTGGCCAGAAAAGATGCGCTTCTGAATTTGT  
411► T L K N L T S L D I S R N T F H P M P D S C Q W P E K M R F L N L

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**BamHI (1909)**  
1901 CCAGTACAGGGATCCGGGTGGTAAAAACGTGCATTCTCAGACGCTGGAGGTGTTGGATGTTAGTAACAACAATCTTGACTCATTTTCTTTGTTCTTCC  
444► S S T G I R V V K T C I P Q T L E V L D V S N N N L D S F S L F L P

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**BspHI (2077)**  
2001 TCGGCTGCAAGAGCTCTATATTTCCAGAAATAAGTGAAAACTCCAGATGCTTCTGTTGTTCCCTGTGTTGCTGGTCATGAAAATCAGAGAGAATGCA  
477► R L Q E L Y I S R N K L K T L P D A S L F P V L L V M K I R E N A

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**ScaI (2103)**  
2101 GTAAGTACTTTCTAAAGACCAACTTGGTCTTTTCCAAAACCTGGAGACTCTGGAAGCAGGCACAACCACTTTGTTTGTCTCTGCAACTCCTATCCT  
511► V S T A T T F S K D Q L G S F P K L E T L E A G D N H F V C S C E L L S  
2201 TTAATATGGAGACGCCAGCTCTGGCTCAAATCTGGTGTGACTGGCCAGACAGTACTCTGTGTGACTCTCCGCCTCGCTGCACGGCCACAGGCTTCAGGA  
544► F T M E T P A L A Q I L V D W P D S Y L C D S P P R L H G H R L Q D  
2301 TGCCCGCCCTCCGCTTGTGAATGTACCAGGCTGCACTGGTGTCTGGAGTCTGCTGTGCCCTTCTCTGTTGATCTTGTCTGATAGGTCGCCCTGTGCCAC  
577► A R P S V L E C H Q A A L V S G V C C A L L L L I L L V G A L C H

2401 CATTTCACGGACTGTGGTACCTGAGAATGATGTGGCGTGGCTCCAGGCCAAGAGGAAGCCCAAGAAAGCTCCCTGCAGGGACGTTTAGCTAGCTGGCC  
611▶ H F H G L W Y L R M M W A W L Q A K R K P K K A P C R D V • —  
2501 AGACATGATAAGATACATTGATGAGTTTGGACAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATT

2601 GTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACAAATTGCATTCAATTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGT

2701 AAAACCTCTACAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAAT  
EcoRI (2723)  
2801 AAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTTAAAGATATAGTGTATTTTCCCAAGGTTTG

2901 AACTAGCTCTTCAATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAA  
SapI (2905) SspI (2962) SwaI (2976)

3001 AATAAATGTTTTTTATTAGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAG  
EcoO109I (3037)

3101 AAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCT  
141◀ • N R T Y K L P I L E E I T T K V L K G N M E  
BstXI (3266)

3201 CAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTA  
118◀ I L V F C D P A Y D S I L E R C M G C P S V V R I S R D V E D S Y  
3301 GGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATG  
85◀ P H R V A V I T D F D K Q G N S V A S G I A I A E A C V T V R G I  
StuI (3401)

3401 TAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGCCCGACATGGTCTTGTGTCCTCATAGAGCATGGTGTCTTCT  
51◀ Y A E I H V A S I I E G T K T R I A A G V H H K N D E Y L M T I K E  
BbsI (3547)

3501 CAGTGGCGACCTCCACCAGTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACT  
18◀ T A V E V L E L D Q Q S I N F T K M  
XmnI (3543)

3601 ATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCCTAAACGAGCTCTGCTTATATAGACCTCCACCGTACAG  
AseI (3609)

3701 CCTACCGCCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGG  
SpeI (3764)

3801 TGGAGACTTGAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCGCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGA  
SnaBI (3892)

3901 TGTACTGCCAAGTAGGAAAGTCCATAAGGTCACTGACTGGGCATAATGCCAGGCGGGCCATTACCCTGATTGACGTCAATAGGGGGCTACTTGGCAT  
NdeI (3997)

4001 ATGATACACTTGTACTGCTCAAGTGGCAGTTTACCCTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATAC

4101 GTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGTCCAGCCAGGCGGCCATTTACCCTAAGTTATGTAACGCCCTGACGGTTAATAAGAACATGTG  
PstI (4176) SdaI (4175) PacI (4183) BspLU11I (4193)

4201 AGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGC  
4301 TCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTTCCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCGACCCTGCCGCTTA  
4401 CCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCT

4501 GGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTG  
ApaLI (4507)

4601 GCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAG  
4701 TATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGGCAAAACAAACCACCGCTGGTAGCGGTGTTTTTT  
4801 TGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTCACGT

**EagI (4943)**

PacI (4923) SwaI (4932) NotI (4942)

4901 TAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGA  
5001 ATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTC  
5101 TATCGAA